

REMARKS

Claims 42-50 and 52-68 are all the claims pending in this application.

The specification has been amended to replace Table 5, which inadvertently stated Examples 1 and 2 and Comparative Examples 1 and 2, instead of Examples 9 and 10 and Comparative Examples 3 and 4. Support for replacement Table 5 is set forth, for example, at page 80, line 3 and 17-18, which state that the results of Examples 9 and 10 are set forth in Table 5, and at page 81, line 4 and 15-16, which state that the results of Comparative Examples 3 and 4 are set forth in Table 5.

Claim 51 has been canceled and claim 52 has been rewritten in independent form. In addition, claim 54 has been amended so that it does not depend from canceled claim 51.

Entry of the above amendments is respectfully requested.

Initially, it is noted that while the Examiner has acknowledged the claims for domestic priority under 35 U.S.C. § 119(e), he has not indicated that the translations of the provisional applications have been received. Since the translations were filed in the provisional applications, the Examiner is respectfully requested to acknowledge receipt of the English translations.

With respect to the restriction requirement, Applicants affirm the election of claims 51-54 and 67-68 without traverse, and may request the Examiner to rejoin method claims specifically related to any allowable product claim.

I. Objection to the abstract

The Examiner has objected to the abstract of the disclosure because it is more than one paragraph.

Applicants have amended the abstract so that it is a single paragraph. Accordingly, withdrawal of the objection is respectfully requested.

II. Rejection under 35 U.S.C. § 112, second paragraph

Claims 51-54 and 67-68 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Examiner asserts that “predominantly comprising” in claim 51 is a relative term which allegedly renders the claim indefinite.

Applicants have canceled claim 51, and claim 52 has been rewritten to be in independent form by incorporating claim 51, except for the term “predominantly.”

Accordingly, withdrawal of the foregoing rejection is respectfully requested.

III. Rejection of claims 51 and 53 under 35 U.S.C. § 102

Claims 51 and 53 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Osaka et al., U.S. Patent No. 5,256,463 (“Osaka”).

The Examiner asserts that Osaka discloses a method for multi-layering a CRT surface. (see abstract). The Examiner asserts that Example 2-B (i.e., B-2) discloses 125 parts of high purity graphite powder UFG-5S (manufactured by Showa Denko, Ltd.) dispersed per 100 parts of acrylic resin (solid) and mixed. Therefore, the Examiner concludes that the reference example either specifically or inherently meets each of the claimed limitations.

Applicants respectfully respond as follows.

Osaka discloses UFG-5S in Example B2, which is graphite having an average particle size of 1 to 13 μm and a particle size of 32 μm or more in an amount of 12 mass% or less. In this regard, Applicants submit herewith a description of UFG-5 artificial graphite powder for the Examiner's information. However, Osaka uses acrylic resin as a binder and does not use a material which possesses rubber elasticity.

In contrast, the present invention comprises a binder that is of a material of rubber-like elasticity that is swellable or suspendable in a solvent. Examples of such material that possesses rubber-like elasticity are isoprene rubber, butadiene rubber, styrene/butadiene rubber, etc. Since the graphite powder of Osaka does not comprise a material possessing rubber-like elasticity, Osaka does not teach or disclose the claimed invention.

Accordingly, Osaka does not teach the present invention, and withdrawal of the foregoing rejection is respectfully requested.

IV. Rejection of claims 51-54, 67 and 68 under 35 U.S.C. § 102/103

Claims 51-54, 67 and 68 have been rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over W099/50918 (PCT publication of Iijima et al., U.S. Patent No. 6,447,950 ("Iijima")).

The Examiner asserts that Iijima disclose electrodes for a battery containing a coating material with binder and carbon (see col. 3, lines 35-45). The Examiner further asserts that the amount of binder in the graphite layer is preferably 1 to 60% by weight, more preferably 5 to 40% by weight in the graphite dry coated later (see col. 5, lines 63, 67).

In addition, the Examiner asserts that even if the disclosure of WO '918 is insufficient to anticipate the above listed claims, it would have nonetheless been obvious to the skilled artisan to produce a carbon paste comprising rubber-like polymer, solvent and artificial graphite (having the instantly claimed properties) as WO '918 clearly teaches conductive paste compositions containing each of the instantly recited ingredients within their claimed proportions.

Applicants respectfully respond as follows.

Iijima discloses an electrode for a battery comprising an electrode active material layer, a collector and an electrode tab, where the collector and the tab are being connected via a graphite layer (see col. 2, lines 35-38). Additionally, Iijima discloses carbon material as used as an electrode material.

However, Iijima does not disclose a carbon material containing artificial graphite in an amount of 80 mass% or more, and artificial graphite with a fixed carbon content of 97 mass% or more. When the amount of artificial graphite is less than 80 mass %, the conductivity of the obtained conducting carbon paste is not satisfactory (see page 60, lines 11-15).

Further, in addition to the UFG series, Iijima discloses the UFG series as graphite such as natural graphite, graphite formed by removing Si from SiC, graphite formed through vapor growth, expanded graphite, graphite intercalation compound and the like (see col. 5, lines 15-20). In the present invention, natural graphite is disclosed as being disadvantageous to use because of low conductivity due to poor packing and containing a large amount of impurities (see page 10, lines 13-21). In addition, the artificial graphite of the present invention has an

aspect ratio of 10 or less which has high purity compared with natural graphite or carbon black, low deterioration and increased packing density. For example, the present specification, at pages 58-61, describes the artificial graphite of the present invention, and discloses that flake or leaf-shaped natural graphite has aspect ratios of more than 10, which differs from the present invention, and that the conducting carbon paste containing the graphite with an aspect ratio of more than 10 exhibits low packing and high electrical resistance.

Further, Examples 9 and 10 used UFG-5 and Comparative Examples 3 and 4 used natural graphite of flake form having an aspect ratio of more than 10. As shown in Table 5 at page 82, Examples 9 and 10 exhibited lower ESR, smaller difference in ESR before and after reflow soldering, low reflow and humidity defect ratios compared to Comparative Examples 3 and 4.

In summary, Iijima does not disclose the use of a conductive carbon material containing artificial graphite in an amount of 80 mass% or more and having an aspect ratio of 10 or less. Therefore, Iijima does not teach or suggest the claimed invention, and withdrawal of the foregoing rejection is respectfully requested.

V. Conclusion

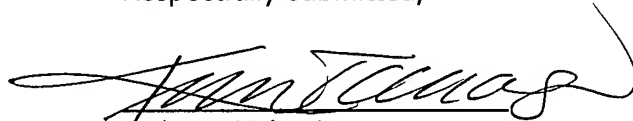
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application N .: 10/053,672

Attorney Docket N .: Q68126

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: January 27, 2004

UFG

Business Sectors



Fine Carbon Division

Artificial graphite powder

< UFG™ >



UFG is a high-grade artificial graphite powder produced by our proprietary graphitization technology and treated at ultra-high temperatures of 3,000 °C. It features stable properties, with numerous application, among which are increased lubricity and thermal and electrical conductivity.

* Features

- UFG contains fewer impurities and is more stable than natural graphite.
- UFG offers high thermal conductivity and sliding properties (lubricity) beyond the capacity of carbon black.
- UFG can be loaded into resins at high densities to produce resins with low electrical resistance.
- We offer high production capacity for UFG and are able to immediately fill even large orders.
- Other particle sizes are also available by special order.

Typical properties

	Fixed carbon [%]	Volatile component [%]	Ash content [%]	Sulfur content [%]	True specific gravity [g/cm ³]	Bulk density [g/cm ³]	Particle size distribution	
							Mean particle diameter [μm]	Cumulative total [%]
⇒ UFG-5	98.0 over	1.0 under	1.0 under	0.03	2.2	From 0.1 to 0.2	from 1.5 to 4.5	Larger than 6 μm 20% or less
UFG-10	99.3 over	0.4 under	0.6 under	0.03	2.2	From 0.2 to 0.3	from 2.5 to 6.5	Larger than 12 μm 20% or less
UFG-30	99.4 over	0.4 under	0.6 under	0.03	2.2	From 0.2 to 0.3	from 9.0 to 12.0	Larger than 32 μm 20% or less

* Applications

- To impart thermal and electrical conductivity to resins and rubbers
- To impart sliding properties to resins and rubbers
- To impart sliding properties (lubricity) to metals
- Pore-forming material for ceramics (for manufacturing porous ceramics)